

CLAIMS

1. An injection molding nozzle (10) for use in an injection mold, comprising a nozzle casing (20) containing at least one runner (30) for an injection material to be processed and issuing at or in a nozzle orifice element (40) and being connected to allow injection material flow, by means of an insert (50) configured end-wise at or in the nozzle orifice element (40), to a mold cavity constituted by at least one set of inserts (12, 13).

characterized in that

the nozzle orifice element (40) configured in the nozzle casing (20) and/or the insert (50) configured in the nozzle orifice element (40) are longitudinally displaceable and in that during operation of the molding injection nozzle (10) and in that they are clamped between the nozzle casing (20) and the mold insert (12, 13) during operation of the injection molding nozzle (13).

2. Injection molding nozzle as claimed in claim 1, characterized in that the insert (50) may be plugged into the nozzle orifice element (40) by means of a neck segment (53).

3. Molding injection nozzle as claimed in either of claims 1 and 2, characterized in that the insert (50) is fitted with a flange (52) which rests axially against the mold insert (12) and/or against the nozzle orifice element (40).

4. Injection molding nozzle as claimed in one of claims 1 through 3, characterized in that the insert (50) enters the mold insert (12) by means of an end element (56).

5. Injection molding nozzle as claimed in one of claims 1 through 4, characterized in that the end element (56) is fitted with, or constitutes, a gate aperture (18).

6. Injection molding nozzle as claimed in one of claims 1 through 5, characterized in that the end element (56) constitutes, respectively bounds, a portion of the mold cavity.

7. Injection molding nozzle as claimed in one of claims 4 through 6, characterized in that the end element (56) matches at least segment-wise the mold inserts (12).

8. Injection molding nozzle as claimed in one of claims 1 through 7, characterized in that the insert (50) constitutes a centering element centering the injection molding nozzle (10).

9. Injection molding nozzle as claimed in one of claims 1 through 8, characterized in that an airgap (87) is subtended between the insert (50) and the mold inserts (12).

10. Injection molding nozzle as claimed in one of claims 1 through 9, characterized in that the material of the nozzle orifice element (40) is thermally highly conducting.

11. Injection molding nozzle as claimed in one of claims 1 through 10, characterized in that the material of the insert (50) is thermally highly conducting or thermally poorly conducting.

12. Injection molding nozzle as claimed in one of claims 1 through 10, characterized in that the nozzle orifice element (40) and the insert (50) are integral and made of the same material.

13. Injection molding nozzle as claimed in one of claims 1 through 12, characterized in that the insert (50) is made of a wear-resistant material.

14. Injection molding nozzle as claimed in one of claims 1 through 13, characterized in that the nozzle orifice element (40) and/or the insert (50) constitute(s) an open gate (90).

15. Injection molding nozzle as claimed in one of claims 1 through 14, characterized in that the nozzle orifice element (40) and/or the insert (50) comprise(s) a conical nozzle tip (94) projecting as far as a parting plane (16) or beyond it.

16. Injection molding nozzle as claimed in either of claims 13 and 14, characterized in that a support bush (70) is configured between the insert (50) and the mold inserts (12).

17. Injection molding nozzle as claimed in claim 16, characterized in that the support bush (70) is longitudinally displaceable and clamps the injection molding nozzle (10) during operation between the insert (50) and the mold inserts (12).

18. Injection molding nozzle as claimed in either of claims 16 and 17, characterized in that the support bush (70) bounds an airgap (92).

19. Injection molding nozzle as claimed in one of claims 16 through 18, characterized in that the support bush (70) subtends the gate aperture (18).

20. Injection molding nozzle as claimed in one of claims 16 through 19, characterized in that the support bush (70) constitutes respectively bounds a portion of the mold cavity.

21. Injection molding nozzle as claimed in one of claims 1 through 20, characterized in that the injection molding nozzle (10) is a needle shutoff nozzle, comprising a shutoff

needle (60) passing through the runner (30) and through the nozzle orifice element (40) in longitudinally displaceable manner and being displaceable from an open into a closed position, the shutoff needle (60) being fitted with, or constituting at its lower end, a sealing element (65) which, in the closed position, enters a sealing seat (D).

22. Injection molding nozzle as claimed in claim 21, characterized in that the sealing seat (D) for the sealing element (65) of the shutoff needle (60) is configured in the end element (56) of the insert (50).

23. Injection molding nozzle as claimed in either for claim 21 and 22, characterized in that the insert (50) constitutes a needle guide for the shutoff needle (20), the shutoff needle (60) being guided in a manner in the insert (50) that the sealing element (65) shall touch the sealing seat (D) only shortly before reaching the closed position of the shutoff needle (60).

24. Injection molding nozzle as claimed in one of claims 21 through 23, characterized in that the insert (50) centering the shutoff needle (60) comprises at least one intake cone (54, 57) in front of the sealing seat (D), a first intake cone (54) being configured in the neck segment (53) of the insert (50) and a second cone (57) in the end element (56).

25. Injection molding as claimed in one of claims 21 through 24, characterized the shutoff needle (60) tapers toward the sealing element (65), the transition (63) from a large diameter needle segment (62) to a smaller diameter sealing element (65) being conical and/or rounded.

26. Injection molding as claimed in one of claims 21 through 25, characterized in that the shutoff needle (60) comprises lateral bulges, flattenings, recesses (68) or the like.

27. Injection molding nozzle as claimed in one of claims 1 through 26, characterized the injection molding nozzle (10) is a hot runner nozzle or a cold runner nozzle.